

ABSTRACT

A hexahedral finite element modeling method for controlling an element size, comprising the steps of: dividing a first face of a hexahedral finite element into four uniform sections, and dividing a second face diagonally opposite to the first face into sixteen uniform sections, thus modeling the hexahedral element into a face-refined transition unit mesh module; dividing a first edge of the hexahedral finite element having two meshed faces of the face-refined transition unit mesh module in common into two uniform sections, and dividing a second edge diagonally opposite to the first edge into four uniform sections, thus modeling the hexahedral element into a face-refined transition unit mesh module; and dividing each of three faces of the hexahedral finite element, having three meshed faces of the edge-refined transition unit mesh module in common and meeting each other at a first node, into four uniform sections, and partially dividing each of other three faces, meeting each other at a second node diagonally opposite to the first node, into four uniform sections, thus modeling the hexahedral element into a vertex-refined transition unit mesh module.